Constable Selection System

Guidelines for Examining Ophthalmologists/Optometrists Vision Assessment of Police Constable Applicants

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VISION ASSESSMENT OF POLICE CONSTABLE APPLICANTS GUIDELINES

Introduction

This document is meant for Ophthalmologists or Optometrists examining police constable candidates who have been referred for further examination. Herein are guidelines and standards for identifying and assessing visual impairments that may be contra-indicators to effective police work. The guidelines and standards are meant to ensure that the vision of police constable applicants will allow them to perform essential constable duties at an acceptable level without compromising the health and safety of themselves, their co-workers or the public. The guidelines and standards were developed on the basis of a comprehensive job analysis of the duties of a police constable. The details of the job analysis are featured in Appendix 6: Police Constable Task List.

Role of the Examining Ophthalmologist or Optometrist An applicant may be asked to have a visual assessment by an eye care specialist at different times in the application process. For example: after a vision screening was performed by a technician early in the selection process, and the candidate's uncorrected visual acuity, corrected acuity, colour vision, depth perception, or peripheral vision did not meet the screening requirements; and, after a final medical examination which indicated that the candidate's vision was found to be outside the acceptable standards.

APPENDIX DIRECTORY

A. CORNEAL REFRACTIVE SURGERY

- Standard: Allowed; however, the candidate must meet additional requirements and must provide specific documentation on vision stability and night vision using Constable Selection System approved forms, available through Applicant Testing Services or Ontario Provincial Police. (See Appendix 3).

B. PSEUDOPHAKIC INTRA-OCULAR LENSES

- Standard: Allowed; however, the candidate must meet additional requirements and must provide specific documentation on Constable Selection System approved forms available through Applicant Testing Services or Ontario Provincial Police. (See Appendix 4).

I. PHAKIC INTRA-OCULAR LENS IMPLANTS (PIOL)

- Standard: Certain designs are allowed; however, the candidate must meet additional requirements and must provide specific documentation on vision stability and night vision using the Constable Selection System approved forms, available through Applicant Testing Services or Ontario Provincial Police. (See Appendix 5).

J. ORTHOKERATOLOGY AND CORNEAL TRANSPLANTS

- Standard: Not allowed.

K. OCULAR DISEASE

- Standard: Free from diseases or disorder that impair visual performance as indicated by the standards above, or will produce sudden, unpredictable incapacitation of the visual system.

APPENDIX 1

Colour Vision Testing Information

In order to qualify as a police constable, individuals who fail a colour vision screening test must pass Farnsworth Munsell D-15 (D-15) without any colour corrective (e.g. X-Chrome, Enchoma, Chromagen) lenses.

Because different pass/failure criteria can be used for the D-15 test, the Constable Selection System has adopted the following criterion based on Farnsworth's original protocol in order to ensure consistency across the province.

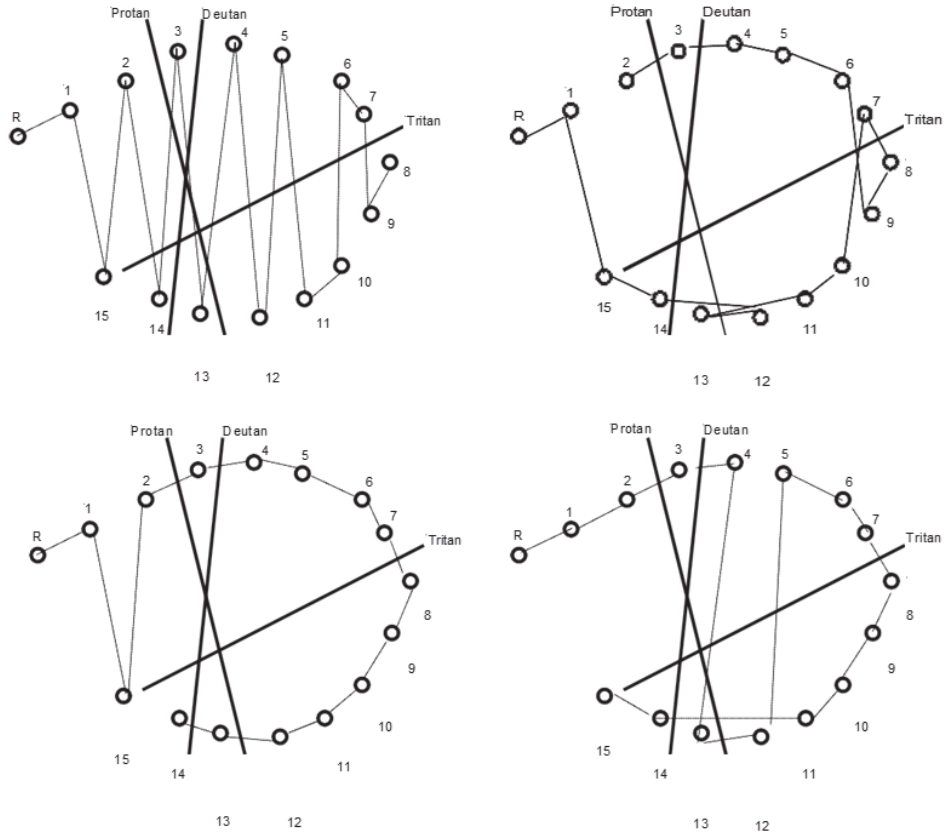
The D-15 test should be administered at least 2 times, possibly 3 times. The candidate must pass the test on two of
the three attempts. The test should be performed binocularly.

A failure occurs when there are 2, or more, major crossings on the score sheet. A major crossing is defined
in literature as a difference between any two adjacent caps that is greater than +2. Although orientation of the crossings is useful in determining the nature of the defect, the orientation of the crossing is not considered in terms of whether the person passes or fails the test. Transpositions of caps (two caps reversed - for example, 1,2,4,3,5) are not considered in determining a person passes or fails. However, more than 3 transpositions on a single trial or consistently nebulous results over the three trials suggest that an addition test is necessary or the patient's colour vision should be evaluated with the Farnsworth-Munsell 100 Hue.

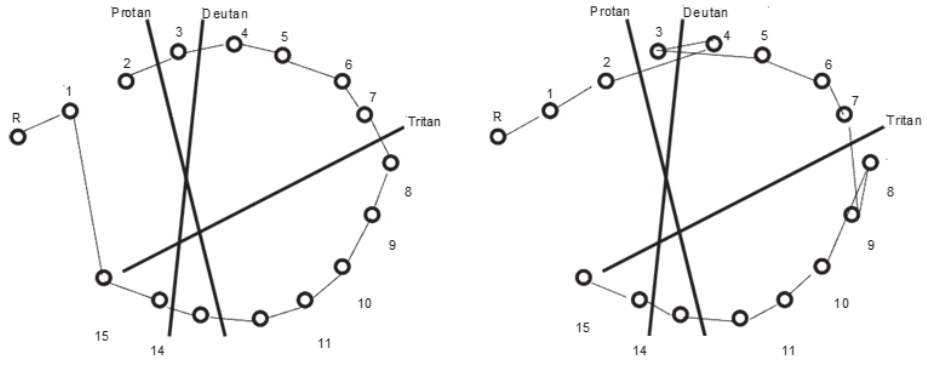
Examples of pass/fail outcomes are shown on the next page.

Possible D-15 Results

Examples of Failing Arrangements



Examples of Passing Arrangements



POLICE CONSTABLE
4.0 Farnsworth Munsell D-15 Colour Vision Test Results

Name of Applicant:_____ Date: _____
(Last Name / First Name)

Trial 1 (OU)

	Ref	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

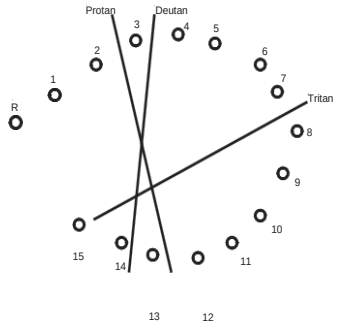
Trial 2 (OU)

	Ref	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Trial 3 (OU)

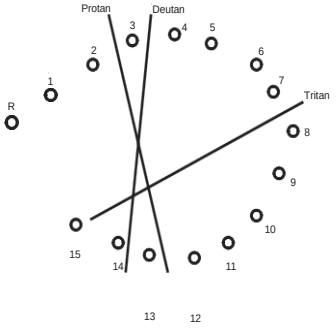
	Ref	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Trial 1



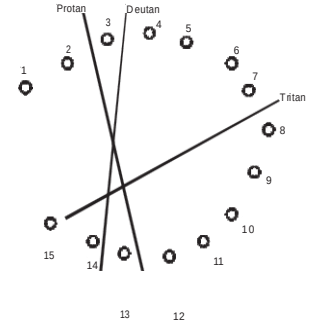
D Meets Standard
D Does Not Meet Standard

Trial 2



D Meets Standard
D Does Not Meet Standard

Trial 3



D Meets Standard
D Does Not Meet Standard

I certify that the above named individual:

D Meets
D Does Not Meet

the CSS Colour Vision requirements for a police constable applicant as outlined on the Colour Vision Testing Supplementary Information sheet.

Ophthalmologist/Optometrist
Official Stamp

Name of Tester:_____ Signature:_____

Appendix 2

Phoria or Strabismus

The presence of any strabismus or large phoria requires additional information from an eye care professional, which documents that the candidate is unlikely to experience double vision when fatigued or in reduced visual environments.
A large phoria is defined as lateral phoria in excess of 5 prism dioptres esophoria or 5 prism dioptres exophoria at distance and in excess of 6 prism dioptres esophoria and 10 prism dioptres exophoria at near. Any vertical phoria 2 prism diopters, or greater.

The report from the eye care professional should formally document whether or not the candidate is likely to experience double vision when tired or in a reduced visual environment. A negative history of diplopia, by itself, is not a sufficient evaluation of their likelihood of developing diplopia. The minimum supporting clinical test results shall include:

Worth 4-Dot test in the dark and/or light (or equivalent) for both strabismus and large phorias
Positive and Negative Fusional eye movement reserves for phorias only
Refusional eye movements for phorias only

Vision Assessment Form
Constable Selection System
5.0 Phoria Assessment Summary

Candidate's Name_____ Date:_____

Cover Test:	Cover Test:
FOR BOTH STRABISMUS AND LARGE PHORIA Distance Worth 4 Dot Test in the Dark Or Equivalent Test _____ (circle one) Fused Diplopia Suppression	**FOR BOTH STRABISMUS AND LARGE PHORIA** Near Worth 4 Dot Test in the Dark Or Equivalent Test _____ (circle one) Fused Diplopia Suppression
FOR LARGE PHORIA ONLY (Horizontal or Vertical) Distance Negative Fusional Reserves _____	**FOR LARGE PHORIA ONLY (Horizontal or Vertical)** Near Negative Fusional Reserves_____
FOR LARGE PHORIA ONLY (Horizontal or Vertical) Distance Positive Fusional Reserves _____	**FOR LARGE PHORIA ONLY (Horizontal or Vertical)** Near Positive Fusional Reserves_____

Additional Tests & Results (if applicable)

In your opinion, is this individual likely to experience diplopia taking into consideration fatigue effects and that the person will be working in reduced visual environments? (circle one)

Yes No

Additional information or comments:

_____ _____
Signature Date

_____
Ophthalmologist/Optometrist's Name
(Please print)

Address: _____
City: _____
Postal Code: _____
Telephone: _____

Appendix 3

Corneal Refractive Surgery

In order to meet the uncorrected visual acuity standard, candidates who have had , photorefractive keratectomy (PRK), laser in situ keratomileusis (LASIK), sub-Bowman keratomileusis (SBK), laser subepithelial keratomileusis (LASEK), laser thermokeratoplasty (LTK), or any other laser assisted corneal refractive surgery within the last six months must provide documentation that the visual acuity and refraction have been stable after the last surgical procedure. The necessary documentation should be provided by their eye care provider and must give full particulars regarding:
the uncorrected monocular acuities,
corrected monocular visual acuities,
subjective refraction results

Documentation must be provided for two examinations that are at least 21 days apart. The documentation should also state that all drugs related to the surgery have been discontinued (except for over the counter artificial tears).

The acuities must meet the standards at each visit and should be within +3 letters of each other. For example if the visual acuity was 6/9 at the one visit and the applicant read the 6/9 line of letters correctly plus three letters on the next smallest line at the next examination, then the acuity would be recorded at 6/9+3. In this example, the acuity would be considered to be stable. The refraction result for each eye should be within +0.50 dioptre for the spherical component and +0.50 dioptre for the cylindrical component. The visual acuity and refraction tolerances reflect day-to-day variability.

In order to ensure that all refractive surgery candidates have adequate night vision, the following standard has been established. Night vision shall be evaluated after it has been established that the refractive error is stable.
Night Vision Standard: Obtain minimum scores on at least 2 of the 3 following tests (all testing is done binocularly with, or without, any spectacle or contact lens correction):

Bailey-Lovie Low Contrast Acuity in Room Illumination: minimum acuity of 0.20 logMAR
Bailey-Lovie High Contrast Acuity in Dim Illumination: minimum acuity of 0.30 logMAR
Bailey-Lovie Low Contrast Acuity in Dim Illumination: minimum acuity of 0.58 logMAR

Note: it has been shown that individuals who fail to meet the minimum criterion for the visual resolution tests also have increased sensitivity to glare.
The testing conditions are:
1) Illumination on the Bailey-Lovie Charts ranges from 275 to 300 lux;
2) Dim illumination is created by having the candidate view the charts through welding goggles with a Shade 6 (luminance transmittance within the range of 1% to 0.4%) filter in place.

The implementation of the standard is a tiered design. The first level is a screening protocol that identifies individuals who are at risk of having night vision difficulties. The second level is assessment with the full set of tests outlined above for those individuals who fail the screening portion.
The screening protocol is based on and the low contrast visual acuity chart at standard chart luminance levels.
Candidates who have had laser assisted corneal refractive surgery and have a minimum binocular visual
acuity of 0.10 log MAR (6/7.5) using an acuity chart with a letter contrast of 25% (Weber Contrast)
are deemed to meet the standard and are not subject to further testing. Note that all the letters on the 0.10
logMAR line have to be read correctly. Surgery candidates who
failed to obtain an acuity of at least 0.10 logMAR will be evaluated using the full set of tests.

All individuals who have had other types of refractive surgery including r PIOLs (see Appendix 5) will be evaluated using the full set of tests.

Constable Selection System
6.0 Corneal Refractive Surgery Summary

(For all candidates who had surgery within the last 6 months)

Candidates Name: _____ Date: _____

Refractive Surgery Procedure Performed: _____ Date of Surgery: _____

	Summary from Previous Assessment [1]	Summary from Most Recent Assessment [1]
Date of Assessment:		
Time of Day: [2]		
Uncorrected Visual Acuities Right Eye: Left Eye:		
Best Corrected Visual Acuities Right Eye: Left Eye:		
Subjective Refraction (Sphere Cylinder) Right Eye: Left Eye:		
Current Medication Related to the Surgery:		

[1] These examinations must be at least 21 days apart.

[2] If the candidate has undergone radial keratotomy, then the two assessments must be at different times of the day. These times should be at least 8 hours apart.

Corrected and Uncorrected Acuity Requirements [Minimum corrected/uncorrected acuity is 6/6 binocularly. If spectacles or contact lenses are required, then the binocular uncorrected acuity should be at least 6/12]

◯ Meets Standard ◯ Does Not Meet Standard

Stability of Refraction and Acuity Requirements [Acuities are considered as being stable if the values are within +3 letters of each other at each visit. The refractive results are stable if the spherical component for each eye is within + 0.50 dioptre and the cylindrical component is also within +0.50 dioptre for each eye for the two assessments.]

◯ Meets Standard ◯ Does Not Meet Standard

_____
Signature

_____
Ophthalmologist/Optometrist's Name
(Please print)

Professional Designation Number: _____

Address: _____

City: _____

Postal Code: _____

Telephone: _____

Constable Selection System
7.0 Night Vision Testing Summary

For either corneal refractive surgical procedures or phakic intra-oculare lens implants

Candidate's Name: _____

Date of Assessment (yyyy-mm-dd): _____

Test	Visual Acuity	Meets Standard/ Does Not Meet Standard
Room illumination Bailey-Lovie Low Contrast Acuity Minimum requirement is at least 0.20 logMAR	_____	☐ Meets Standard ☐ Does Not Meet Standard
High Contrast Bailey-Lovie Low Acuity with Filters (after 5 min of adaptation)[2] Minimum requirement is at least 0.30 logMAR	_____	☐ Meets Standard ☐ Does Not Meet Standard
Low Contrast Bailey-Lovie Acuity with Filters (after 5 min of adaptation)[2] Minimum requirement is at least 0.58 logMAR	_____	☐ Meets Standard ☐ Does Not Meet Standard

[1]All testing should be done binocularly

[2]The dark adaptation period is with the filters on. The candidate is required to dark adapt only once for the low luminance testing sequence

In order to meet the night vision standard, the candidate must pass two of the three tests.

OVERALL RESULT

○ Meets Standard ○ Does Not Meet Standard

_____
Signature

_____
Ophthalmologist/Optometrist's Name
(Please print)

Professional Designation Number: _____

Address: _____ City: _____

Postal Code: _____

Telephone: _____

Appendix 4

Pseudophakic Intra-ocular Lens Implants

Single focus (i.e. monofocal) intra-ocular lens implants as part of cataract surgery or clear lens extractions should be reviewed on an individual basis. Multifocal implants, however, are not allowed because of reduced contrast sensitivity and halos at night.

The agency should request a report after the surgeon has deemed that the refractive error is stable and that the wound has healed sufficiently. The report should include the following:

- date of surgery;
- uncorrected distance acuity of each eye;
- best corrected visual acuity of each eye;
- either stereoacuity (this test may require a reading lens in front of the eye with the intra-ocular lens or an indication that the candidate is nonstrabismus);
- a statement indicating that the wound has healed sufficiently so that the candidate can carry out strenuous physical activities; and
- whether the candidate required prophylactic laser surgery to reduce the likelihood of a retinal detachment in the cases where clear lens extraction was performed to correct high amounts of myopia.

If the candidate meets the current vision standards, then the application process can proceed.

Constable Selection System
8.0 Pseudophakic Intra-Ocular Lens Surgery Summary

Candidate's Name: _____ Date _____

Type of Intra-ocular lens: _____ Date of Surgery: _____

	Summary from Most Recent Assessment
Date of Assessment:	
Uncorrected Visual Ac Right Eye:	
Left Eye:	
Best Corrected Visual Acuities Right Eye:	
Left Eye:	
Subjective Refraction (Sphere Cylinder) Right Eye:	
Left Eye:	

Is the candidate strabismus or likely to experience double vision?

○ YES ○ NO

If the surgery was a clear lens extraction, was prophylactic laser surgery performed?

○ YES ○ NO ○ N/A

In your opinion has the candidate recovered sufficiently from the surgery in order to participate in strenuous activities? For example, dragging a 45 kg weight for 10 metres, lifting 30kg, running at high speed for 100 metres, climbing over fences or other obstacles, jumping over low obstacles.

○ YES ○ NO

_____ Signature	Professional Designation Number: _____ Address: _____
_____ Ophthalmologist/Optometrist's Name (Please print)	City: _____ Postal Code: _____ Telephone: _____

Appendix 5

Phakic Intra-ocular Lens Implants

Phakic Intra-ocular lens implants (PIOL) are allowed in order to meet the uncorrected visual acuity requirements. However, cataract formation, potential night vision problems, and dislocation due to trauma remain concerns.

Cataracts can occur anytime post-operatively. Cataracts due to surgical trauma usually occur within the three months, while later developing cataracts are usually due to disruption of the human crystalline lens' metabolism or the implant touching the crystalline lens. The incidence of cataracts has decreased with the newer designs and surgical techniques. Night vision problems arise from a number of factors, including a small optical zone in the PIOL relative to the pupil size and lens opacities.

PIOLs are acceptable devices for correcting refractive errors providing that the candidate meets all the other vision requirements and the following additional conditions. These are:

A minimum waiting period to ensure the incisions have healed, the refractive error is stable;
Cataracts or other lens opacities due to surgical trauma have not developed with within a 3 month period; and
Night vision is not impaired.

To date, there have been no reports of dislocation/dislodgement of the STAAR Visian/ICL However, there are some reports that the Artisan/Verisyse lens did become dislodged due to moderate trauma. Protective eyewear should be encouraged for constables who have had PIOL, but especially those who have had the Artisan/Verisyse PIOL implanted.

Minimum Post-surgical Waiting Period
A minimum of 3 months, provided the applicant can document that the refractive error and visual acuity have been stable for at least 3 months prior to the most recent assessment AND there are no lens opacities, lens vacuoles, or cataracts present in either eye.
If any lens opacities/vacuoles/cataracts develop within the first 3 months post operatively or the refractive error has not stabilized, then the minimum waiting period will be extended.
□□□For the appearance of lens opacities/vacuoles/cataracts, the minimum extension would be 6 months after the first appearance. This is to ensure that these conditions do not progress.

> For only an unstable refractive error (no lens opacities), the waiting period would be extended until the refraction has been stable for at least 3 months.
> Acuities that are within +3 letters of each other at the two visits are deemed to be stable.
> The refractive results for each eye must be within +0.50 dioptre for the spherical component and +0.50 dioptre for the cylindrical component at the two visits in order to be deemed as stable.

Night Vision

The night vision standard for any PIOL is the same as the standard for candidates who have undergone corneal refractive surgery. (See Appendix 3).
Candidates who have PIOLs must obtain minimum scores on at least 2 of the 3 following tests. All testing is done binocularly with or without any spectacle or contact lens correction.

Bailey-Lovie Low Contrast Acuity in Room Illumination: minimum acuity of 0.20 logMAR
Bailey-Lovie High Contrast Acuity in Dim Illumination: minimum acuity of 0.30 logMAR
Bailey-Lovie Low Contrast Acuity in Dim Illumination: minimum acuity of 0.58 logMAR

Constable Selection System

9.0 Phakic Intra-Ocular Lens Implant Summary

Night Vision Testing is also required

See Appendix 3 of the Guidelines for Examining Ophthalmologists/Optometrists

Candidate's Name: _____ Date : _____

Date of Surgery: _____

	3 Month Post-operative Assessment	6 Month Post-operative Assessment
Date of Assessment:		
Uncorrected Visual A[1] Right Eye:		
Left Eye:		
Best Corrected Visual Acuities Right Eye:		
Left Eye:		
Subjective Refraction[1,2] (Sphere and cylinder) Right Eye:		
Left Eye:		
Appearance of crystalline lens Right Eye:		
Left Eye:		

1 Visual acuities and refractive errors between 3 and 6 months post-operative must be stable. Acuities are considered as being stable if the values are within ±3 letters of each other at each visit. The refractive results are stable if the spherical component for each eye is within ±0.50 dioptre and the cylindrical component is also within ±0.50 dioptre for each eye for the two assessments.

Date that any lens opacities/vacuoles/cataracts were first noted: _____

2 If there are any lens opacities present within the first 6 months post operative or the refractive error has not been stable for at least 3 months, then the waiting period will be extended. Please consult **Appendix 5** for more details.

_____ Signature	Professional Designation Number: _____
	Address: _____
_____	City: _____
Ophthalmologist/Optometrist's Name (Please print)	Postal Code: _____
	Telephone: _____

Appendix 6

Police Constable Task List

1. Preparing for Duty

a) Inspect equipment, including:
- *i) pistol and other weapons*
- *ii) emergency equipment*
- *iii) vehicle*
- *iv) communication equipment*

2. Standard Patrol Checks (Prevention)

a) Carry an equipment belt (firearm, radio, baton, aerosol weapon) for the duration of the shift

b) After business hours, check locked doors and windows

c) Patrol includes:
- *i) driving car*
- *ii) driving other vehicle*
- *iii) motorcycle*
- *iv) bicycle*
- *v) horse*
- *vi) ATV*
- *vii) snowmobile*

d) Conduct foot patrol:
- *i) walking continuously in the course of the day*

e) Use standard emergency equipment or techniques, including:
- *i) flares*
- *ii) traffic cones*
- *iii) first aid*
- *iv) CPR*

f) Perform security checks of business and home (on request)

g) Assist motorists with automobile problems, including:
- *i) lost keys*
- *ii) keys locked in vehicle*
- *iii) stalled auto*
- *iv) flat tire*

3. Response to Patrol Situations

a) Draw, load and discharge fire arm:
   - *i) pull slide on a semi-automatic firearm*
   - *ii) grip in each of left and right hand to aim and discharge*

b) Drive in pursuit of another vehicle

c) Administer first aid or CPR

d) Pursue, on foot, fleeing suspects by:
   - *i) climbing stairs in an emergency (2 to 10 flights)*
   - *ii) climbing over a barrier (i.e. a 4 ft high fence)*
   - *iii) running at high speed for 100 metres*
   - *iv) running at reduced speed for 15 to 30 minutes*
   - *v) avoiding obstacles while running*
   - *vi) jumping over low obstacles*
   - *vii) jumping across an obstacle (ditch, hole, creek) while running*
   - *viii) balancing (beams, fences, roofs etc.) while, running, crawling, jumping (3 m)*

e) Physically force open a closed or locked door with:
   - *i) own body*
   - *ii) pry bar*

f) Use force if necessary to:
   - *i) subdue an attacking or resisting person*
   - *ii) separate disorderly persons from other persons at the scene of a disturbance*
   - *iii) restrain dangerous person for transport*

g) Use baton for protection of:
   - *i) self*
   - *ii) another person*

h) Handcuff suspect when necessary

i) Carry a person unable or refusing to walk to transport him/her to a police car

j) Search for missing or lost persons

k) Humanely destroy by shooting injured or dangerous animals, including wildlife, domestic animals and livestock

l) Perform one or more of the above tasks in a sequence

4. Arrest and Detention Procedures

Alone or with partner, arrest and prevent the escape of a person who has committed, attempted to commit or is about to commit a crime, with any of the following procedures, singularly or in an appropriate sequence, as

necessary:

a) Pull the person from a vehicle or away from a stationary object (such as a car door) he or she is holding

b) Physically restrain, or protect oneself, by:
   i) using grip strength, locks, grips, neck and shoulder holds and arm bars
   ii) striking to subdue
   iii) blocking kicks and blows
   iv) avoiding thrown objects
   v) wrestling for an extended period

c) Pry open hands

d) Lift or force into a police car or van

5. Search and Seizure (Evidence and Property Procedures)

a) Search and separate suspect from others not searched

b) Lift (30 kg) and move a short distance (carry 25 m) objects involved with or which interfere with search and seizure

c) Locate, including stooping to search under low objects, obtain, handle and preserve physical evidence in accordance with search and seizure laws

d) Secure personal effects of a deceased person

e) Perform one or more of the above tasks in a sequence

6. Search and Rescue

a) Run at a high speed to rescue scene (100 m)

b) Run at reduced speed for 5 to 10 minutes

c) Crawl under and over a variety of obstacles (2 to 5 m)

d) Crawl 65 metres

e) Lift a victim (over 35 kg) to safety

f) Drag a person (over 45 kg) who is unable to walk (unconscious, drunk, overcome by smoke, injured) to safety (10 m)

g) Conduct first aid, including CPR, when required

h) Swim and drag a person from water

i) Dig in search of persons engulfed by snow, mud or sand

j) Perform one or more of the above tasks in a sequence

7. Crowd Control

a) Set up barriers to contain crowds

b) Maintain crowd control

8. Traffic Activities

a) Arrest an impaired driver

b) Protect and preserve traffic accident scene and property

c) Direct/control traffic to facilitate vehicle and pedestrian traffic flow and prevent accidents

d) Move by pushing traffic hazards, such as vehicles or other objects, from roadway

e) Set up road blocks to check motor vehicles and occupants or protect and preserve an accident scene by:
i) lifting and placing traffic cones
ii) directing/redirecting traffic

f) Operate radar equipment for speed enforcement

g) Escort funerals, parades, oversized truck-trailer loads, dignitaries and emergency vehicles

h) Perform one or more of the above tasks in a sequence

9. Investigating: Preliminary and Follow-up

a) Follow crime-scene investigation procedures

b) Locate and or isolate suspect in crime

c) Follow missing-person investigation procedures and processes

d) Search vehicles, dwellings, business establishments, etc. for evidence in follow-up investigations

e) Search deceased or deceased's property for identification and to secure valuables

f) Photograph arrested person

g) Fingerprint prisoners and other persons

h) Organize and conduct line-ups

i) Investigate noise complaints

For Reference

Gimbel, H.V., LeClair, B.M., Jabo, B., & Marzouk, H. (2018). Incidence of implantable Collamer lens–induced cataract. Canadian Journal of Ophthalmology, 53 (5), 518-522.

Implantable Contact Lens in Treatment of Myopia (ITM) Study Group U.S. Food and Drug Administration clinical trial of the implantable contact lens for moderate to high myopia Ophthalmology, 110 (2003), pp. 255-266

Sarikkola, A.-U., Sen, H.N., Uusitalo, R.J., & Laatikainen, L. (2005). Traumatic cataract and other adverse events with the implantable contact lens. Journal of Cataract & Refractive Surgery, 31 (3), 511-524.

Menezo, J.L., Peris Martinez, C., Cisneros Lanuza, A.L. & Martinez-Costa, R. (2004). Rate of cataract formation in 343 highly myopic eyes after implantation of three types of phakic intraocular lenses. J Refract Surg, 20, 317-324.

Alió, J.L., Mulet, M.E. & Shalaby, A.M. (2002). Artisan phakic iris claw intraocular lens for high primary and secondary hyperopia. J Refract Surg, 18, 697-707.